DOCUMENT RESUME

ED 206 505 SE 035 598

TITLE Booklists for the Teaching of Mathematics in Schools: Puzzles, Problems, Games and Mathematical Recreations (Ref: PGR).
INSTITUTION Mathematical Association, Leicester (England).
PUB DATE May 80
NOTE 13p.; For related documents, see SE 035 591-600.
AVAILABLE FROM The Mathematical Association, 259 London Road, Leicester, England LE2 3BE (write for correct price).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Annotated Bibliographies; *Books; *Educational Games; Enrichment Activities; Instructional Materials; Mathematical Applications; *Mathematical Enrichment; *Mathematics Education; Mathematics Instruction; *Puzzles; *Resource Materials; Supplementary Reading Materials; Teacher Education

ABSTRACT

Presented is a listing of books recommended by the Mathematical Association of the United Kingdom dealing with Puzzles, Problems, Games, and Mathematical Recreations. The following information on each book is provided: author; title; publisher; cost to the nearest pound; categories of use; and a code that indicates if the book in question is out of print, reprinted, and/or highly recommended. Brief annotations are provided with many of the entries. (MP)

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BOOKLISTS

For the Teaching of Mathematics in Schools

PUZZLES, PROBLEMS, GAMES and MATHEMATICAL RECREATIONS

(REF: PGR)

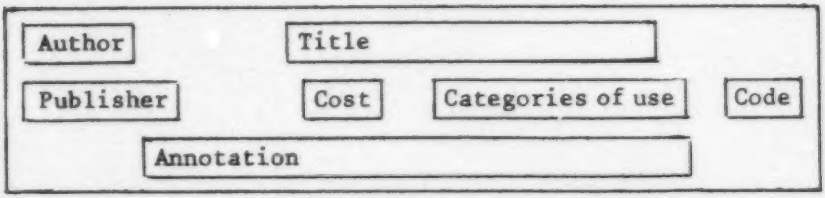
prepared by a sub-committee
of the Teaching Committee
of the
Mathematical Association

THE MATHEMATICAL ASSOCIATION

May 1980

SE 035 598

Information on each book is displayed in the following format:



Cost Given to the nearest £ above.

Code Symbols

- * Highly recommended.
- O Out of Print.
- R Reprinting.

Categories of use

- A Applications - to science, geography, economics.....
- B Background and reference books for teachers.
- C Content - mathematical topics (not above 1st year University level).
- E Mathematical Education - eg. for 'Diploma' students.
- J/K Primary school teachers (4-11 yrs)/and pupils.
- L/M Lower secondary school teachers (11-16)/and pupils.
- P/Q Practical and constructional work, books for teachers/pupils.
- T Teaching method.
- U/V Sixth-form teachers/and pupils.
- Z Puzzles, problems, games and recreational mathematics.

Details of lists available are shown outside back cover.

PREFACE

The lists have been prepared by a sub-committee of Teaching Committee, and edited by F.R. Watson. A data-processing program written by Dr. K.H. Bennett (University of Keele) was used to extract the sublists and print them alphabetically.

Very many people have contributed to the production of these lists, in a variety of ways. In particular, thanks are due to the staff of the Education Library and of the Computer Centre, University of Keele, and to the members of the sub-committee, and many others who supplied information and comments.

It is intended to up-date the lists at fairly frequent intervals. We cannot hope to have avoided all errors and your suggestions are invited; they will help to improve the lists.

Comments on the lists, or notification of errors and omissions will be welcomed. Please address correspondence to the Secretary, Booklists Sub-committee, c/o Mathematical Association, 259 London Road, Leicester.

F.R.W.

May 1980

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BAKER,L., WELLS, STEPHENS, FIELKER — CHILDSPLAY MATHEMATICS
EVANS, 1975. 2 PQJBEZT *
+ (GAMES, OPEN SITUATIONS)

BALL,J — THINK OF A NUMBER
BBC PUBLICATIONS,1979 3 JKZ
+ (BRIGHTLY ILLUSTRATED,FOR 7-12 YEAR OLDS - EDUCATION AND ENTERTAINMENT)

BALL, W.W. & COXETER, H.S.M. — MATHEMATICAL RECREATIONS AND ESSAYS.
MACMILLAN, 12TH ED., 1974. 3 BUVZ *O
+ (G409, CLASSIC COLLECTION, REPEATEDLY REVISED PP. 428)

BARNELL, C. AND OTHERS — STARTING POINTS FOR TEACHING MATHS IN MIDDLE AND SECONDARY SCHOOLS.
OUP.1972. E'LMPQTUVZ *O
+ (MIS 1,7 IDEAS FOR INVESTIGATIONS, LOWER SECONDARY)

BARBEAU, E.,ET AL — 1001 PROBLEMS IN HIGH SCHOOL MATHEMATICS (10 VOLS).
CANADIAN MATH. CONGRESS (342 DRUMMOND ST., MONTREAL, CANADA), 1976. 2 Z *
+ (EACH VOL. CONTAINS 100 PROBLEMS, WITH SOLUTIONS OF SOME, AND OF SOME FROM PRECEDING VOLS. PP.80 EACH)

BARNARD, D. — 50 OBSERVER BRAIN TWISTERS.
FABER, 1962. Z
+

BEILER, A.H. — RECREATIONS IN THE THEORY OF NUMBERS. THE QUEEN OF MATHEMATICS ENTERTAINS
DOVER, 1966. 3 LMUVZ *
+ (ELEMENTARY, VERY FULL BIBLIOGRAPHY, PP.349)

BOLTYANSKII, V.G. — EQUIVALENT AND EQUIDECOMPOSABLE FIGURES.
HEATH. CUVZ
+

BOON, F.C. (REVISED CUNDY) — PUZZLE PAPERS IN ARITHMETIC.
BELL, 1960. LMUVZ
+ (NOT JUST ARITHMETIC - USEFUL COLLECTION OF 'PUZZLES')

BRADIS, V.M.ET AL — LAPSES IN MATHEMATICAL REASONING.
PERGAMON, 1963. BUZ 0

BURKILL, J.C. AND CUNDY, H.M. — MATHEMATICAL SCHOLARSHIP PROBLEMS.
CUP. UVZ 0

CADWELL, J.H. — TOPICS IN RECREATIONAL MATHEMATICS.
CUP, 1966 7 UVZ

CHAROSH, M. — MATHEMATICAL CHALLENGES.
NATIONAL COUNCIL OF TEACHERS OF MATHS, 1965. LMUVZ

DOMORYAD, A.P. — MATHEMATICAL GAMES AND PASTIMES.
PERGAMON, 1964. Z 0
(TERSE)

DORRIE, H. — 100 GREAT PROBLEMS OF ELEMENTARY MATHEMATICS.
DOVER. 1965. 3 BUVZ *

DYNKIN, E.B.&USPENSKII, V.A. — MULTICOLOR PROBLEMS.
HEATH (EUROSPAN, LONDON WC2) CUVZ *
(STEADY PROGRESS THROUGH THE 2 AND 3 COLOUR PROBLEMS; EXCELLENT FOR INDEPENDENT STUDY BY THE ABLE PUPIL)

ESCHER, M. C. — THE GRAPHIC WORK OF M. C. ESCHER.
OLDBOURNE PRESS. 1961. BJKLMUVZ *
(GOOD REPRODUCTIONS, SOME IN COLOUR, OF ESCHER'S WORK; NO ANALYSIS)

FLETCHER, T.J. — RECURRENCE RELATIONS.
MATHEMATICAL PIE, 1958. LUVZ

FORSYTH, A. I. AND OTHERS — COMPUTER SCIENCE BASIC LANGUAGE PROGRAMMING.
OLIVER AND BOYD. 8 LMUVZ 0
(MAINLY MATHEMATICAL PROBLEMS)

GOLOMB, S. W. — POLYOMINOES
ALLEN & UNWIN 1965 2 L M U V Z

GRAHAM, L.A. INGENIOUS MATHEMATICAL PROBLEMS AND METHODS.
DOVER, 1959. 3 UVZ
+

GREITZER, SAMUEL L. INTERNATIONAL MATHEMATICAL OLYMPIADS 1959-1977
WILEY (FOR MATHEMATICAL ASSOCIATION OF AMERICA) 1ST ED. 1978 4 UVZ
+ (PP. 204)

GRICE, M. ONE,TWO,THREE,FOUR : NUMBER RHYMES & FINGER GAMES
FREDERICK WARNE 1972 JPZ
+

GRUENBERGER, F. AND JAFFRAY, G. PROBLEMS FOR COMPUTER SOLUTION.
WILEY, 65. HQVZ
+ (PROBABLY BEST SUCH COLLECTION)

HOLDEN, A. SHAPES,SPACE AND SYMMETRY.
COLUMBIA, 1971. KHVZ *
+ (MANY BEAUTIFUL PHOTOGRAPHS DISCUSSED AND ANALYSED)

HONSBERGER,R MATHEMATICAL PLUMS
MATHEMATICAL ASSOCIATION OF AMERICA,1979 8 LMUVZ
+ (10 ESSAYS ON INGENIOUS MATHEMATICAL WORK AT THE ELEMENTARY LEVEL, PP 182) (SEE ALSO M.'GEMS' AND 'MORSELS')

HORNF, S. PATTERNS AND PUZZLES IN MATHEMATICS
RAND MCNALLY, (FRANKLIN PUBLICATIONS), 1970. ZQ
+ (COLLECTION OF PUZZLES AND GAMES, MANY ARE GEOMETRIC, 96PP.)

HUNTLEY, H.E. THE DIVINE PROPORTION.
DOVER, 1970. 2 CVZ
+ (G393,PP181)

KASNER, E. & NEWMAN, J.R. MATHEMATICS AND THE IMAGINATION.
BELL,1949. 5 BLUVZ *
+

KORDEMSKY, B. THE MOSCOW PUZZLES.
PENGUIN, 1975. 2 LMUVZ *
+ (MIS 6,1)

KRAITCHIK, M. MATHEMATICAL RECREATIONS.
ALLEN & UNWIN, 1960. BLMUVZ *0
+

LIETZMANN, W. VISUAL TOPOLOGY.
CHATTO AND WINDUS, 1969 2 CLMUVZ 0
+ (TRANS. FROM GERMAN, VERY READABLE INTRODUCTION, PP169)

LINDGREN, H. RECREATIONAL PROBLEMS IN GEOMETRIC DISSECTIONS.
DOVER, 1972. 1+ Z
+ (G402, PP184)

LINDGREN, H. & FREDERICKSON, G. GEOMETRIC DISSECTIONS.
DOVER/CONSTABLE, 1965. MVZ *
+

LOYD, S. MATHEMATICAL PUZZLES OF SAM LOYD, (2 VOLS)
DOVER. 2,2 Z
+

MACGILLAVRY, C.H. SYMMETRY ASPECTS OF ESCHER'S PERIODIC DRAWINGS.
BOHN, SCHELTEMA AND HOLKEMA, UTRECHT, BZU *
2ND EDN., 1976
+ (ESCHER'S PICTURES USED TO PRODUCE TESSELATIONS; ANALYSIS PROVIDED)

MAXWELL, E.A. FALLACIES IN MATHEMATICS.
CUP, 1959. 5 BELUVZ
+

MOSES, S. THE ART OF PROBLEM-SOLVING.
TRANSWORLD. 1 UVZ *0
+ (G413, PP183)

MOTT-SMITH, G. MATHEMATICAL PUZZLERS FOR BEGINNERS AND ENTHUSIASTS.
DOVER, 2ND EDN., 1964. 2 Z
+

NCTM GAMES AND PUZZLES FOR ELEMENTARY AND MIDDLE SCHOOL MATHEMATICS
NCTM, 1975 (NCTM 1906 ASSOCIATION DRIVE, JZ
RESTON, VIRGINIA 22091 USA)
+ ("ELEMENTARY" = PRIMARY, PP280)

NORMAC (NORTHERN MATHEMATICS COUNCIL) (VARIOUS; 8 DIFFERENT TITLES)

NORMAC (B. S. PINFIELD, MANCHESTER EDUCATION COMMITTEE) 1 JLBTZ

+ (MIS 7,3, MT 89, PRIMARY BOOKS FOR REFERENCE, PP. 40 EACH. TITLES ARE RECEPTION, NUMBER 678, NUMBER FUN, NUMBER PATTERNS, INTRODUCTION TO MEASUREMENT FOR INFANTS, BRICKS BOXES AND CONTAINERS, POLYGONS AND POLYHEDRA, GEOBOARDS AND COORDINATES PRICE 30P OR 40P)

NORTHROP, E. P. RIDDLES IN MATHEMATICS.
PENGUIN. 1 BLMTUVZ *
+ (GOOD REFERENCE BOOK FOR PARADOXES; EXCELLENT DISCUSSION OF "EVERY TRIANGLE IS ISOSCELES")

O'BEIRNE, T.H. PUZZLES AND PARADOXES.
OUP, 1965. BLUVZ
+

OGILVY, C.S. THROUGH THE MATHESCOPE.
OUP, 1956. BUVZ 0
+

OGILVY, C.S. TOMORROW'S MATH, (UNSOLVED PROBLEMS FOR THE AMATEUR)
OUP, 2ND EDN.,1972 UZ 0
+ (MIS 2,2, PP 198)

OGILVY, C.S. EXCURSIONS IN GEOMETRY.
LMUVZ *
+

PEDOE, D. A. THE GENTLE ART OF MATHEMATICS.
PENGUIN BLUVZ *0
+

PERELMAN, Y. FIGURES FOR FUN; STORIES AND CONUNDRUMS.
MOSCOW: FOREIGN LANGUAGES PUBLISHING HOUSE, 1957. LMUVZ
+

PHILLIPS, H BRUSH UP YOUR WITS
DENT 1936 ZJLUMV
+

POLYA, G. MATHEMATICAL DISCOVERY; ON UNDERSTANDING, LEARNING AND TEACHING PROBLEM SOLVING. VOL 1 AND VOL 2
WILEY, 1962 AND 1965. ETUZ *O
+

POLYA, G. MATHEMATICS AND PLAUSIBLE REASONING (2 VOLS).
OUP PRINCETON UNIVERSITY PRESS, 1955. BCETUZ *
+ (EXCELLENT, STIMULATING; VOL I "INDUCTION AND ANALOGY", VOL II "PATTERNS OF PLAUSIBLE INFERENCE" PP 280,244)

POLYA, G. & KILPATRICK, J. THE STANFORD MATHEMATICS PROBLEM BOOK WITH HINTS AND SOLUTIONS.
TEACHERS COLLEGE PRESS, 1974. ELUVZ *
+ (G406, PROBLEMS FROM STANFORD COMPETITION, PP68)

POLYA, G. & SZEGOE, G. PROBLEMS AND THEOREMS IN ANALYSIS (2 VOLS).
SPRINGER VERLAG, 1976. 7,8 CTUZ
+ (A SEQUENCE OF PROBLEMS, WITH SOLUTIONS, IN SEVERAL AREAS OF UNIVERSITY MATHEMATICS)

RADEMACHER, H. & TOEPLITZ, O. THE ENJOYMENT OF MATHEMATICS.
PRINCETON UNIVERSITY PRESS (EPSOM RD., GUILDFORD,SURREY) 3 UVZB *
+ (ENJOYABLE TO DIP INTO,PP204)

RAPAPORT, E.(TRANSLATOR) HUNGARIAN PROBLEM BOOKS, 1&2.
RANDOM HOUSE, 1963. LUVZ *
+

ROBERTS, J ELEMENTARY NUMBER THEORY - A PROBLEM ORIENTED APPROACH
M.I.T. PRESS, 1977 9 VCZ *
+ (PRESENTS NUMBER THEORY BY PROBLEMS)

ROBSON, A EXAMPLES IN MATHEMATICS FOR 5TH AND LOWER 6TH FORMS
BELL, 1948 UVZ
+

SACKSON, S. A GAMUT OF GAMES.
NELSON, 1974. JKLMPQUVZ *
+ (IDEAL FOR A MATHS CLUB)

SCHAAF, W.L. A BIBLIOGRAPHY OF RECREATIONAL MATHEMATICS. 3 VOLS.
NCTM 1970-73. BLTUZ *
+ (USEFUL REFERENCE)

SCHUH, F. THE MASTER BOOK OF MATHEMATICAL RECREATIONS.
DOVER, 1968. 3 MVZ
+

SHKLARSKY,D.O. ET AL U.S.S.R OLYMPIAD PROBLEMS BOOK
FREEMAN, 1962. UVZ 0
+

SIERPINKSKI W. PROBLEMS IN THEORY OF NUMBERS.
PENGUIN, 1964. Z 0
+

SIERPINSKI, W. 250 PROBLEMS IN ELEMENTARY NUMBER THEORY.
ELSEVIER, 1970. 5 UVZ
+ (G396, PP. 124)

SINKOV, A ELEMENTARY CRYPTANALYSIS
SINGER (NOW MAA), 1968 LMUVZ
+

STEINHAUS, H. MATHEMATICAL SNAPSHOTS.
OUP,3RD EDN. 1969. 8 BJLMUVZ *
+ (EXCELLENT; BEAUTIFUL AND UNUSUAL BOOK OF PHOTOS AND DIAGRAMS)

STEINHAUS, H. ONE HUNDRED PROBLEMS IN ELEMENTARY MATHEMATICS.
PERGAMON, 1963. VZ 0
+

STEVENS, P.S. PATTERNS IN NATURE.
PENGUIN, 1974. 4 AJLMUVZ
+ (FULL OF VISUAL PATTERNS WITH MATHEMATICAL CONNECTIONS,SOME FOUND IN SEEMINGLY HAPHAZARD SITUATIONS)

STRASZEWICZ, S. MATHEMATICAL PROBLEMS & PUZZLES FROM THE POLISH MATHEMATICAL OLYMPIADS.
PERGAMON, 1965. UVZ 0
+

TAHTA D.G. PEGBOARD GAMES. MATHEMATICS TEACHING PAMPHLET NO.13.
ATM,1967. EJKLMPQTUVZ
+

TIETZE, H. FAMOUS PROBLEMS OF MATHEMATICS.
GRAYLOCK, 1965. CUVZ *
+ (DISCURSIVE SURVEY OF TOPICS IN PURE MATHEMATICS,ESP.PRIME NUMBER THEORY AND ALGEBRAIC TOPOLOGY.VERY EASY READING)

WEYL H. SYMMETRY.
PRINCETON UNIVERSITY PRESS,EPSOM RD. 7 BCLUVZ *
GUILDFORD, SURREY, 1952.
+ (A POPULAR ACCOUNT BY AN EXPERT,PP168)

WHITWORTH, W.A. CHOICE AND CHANCE.
HAFNER, 1959. BPQUZ
+

WYLIE, C.R.JR. 101 PUZZLES IN THOUGHT AND LOGIC
DOVER,1957. 1 LMUVZ *
+

YAGLOM AND YAGLOM 100 CHALLENGING PROBLEMS IN ELEMENTARY MATHEMATICS (2 VOLS)
BCUVZ *
+ (TEACHES A SUBSTANTIAL AMOUNT OF INTERESTING MATHEMATICS THROUGH PROBLEMS)

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